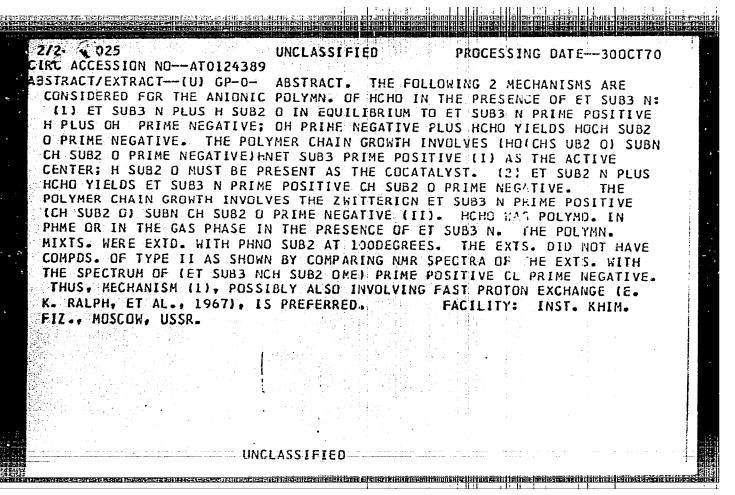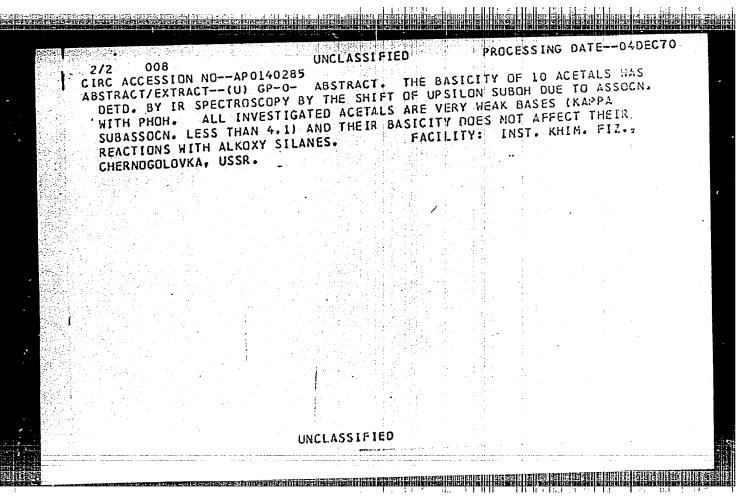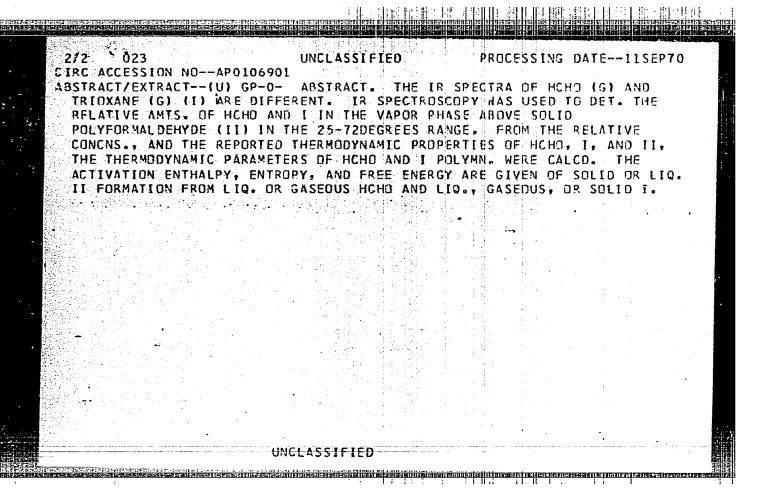TITLE--NATURE OF ACTIVE CENTERS DURING ANIONIC POLYMERIZATION OF
  FORMALDEHYDE CN TRIETHYLAMINE -U-

AUTHOR-(05)-MARKEVICH, M.A., PENCHEV, P.I., KEDRINA, N.F., IVANOV, V.V.,
  YENIKOLOPYAN, N.S.

COUNTRY CF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(5), 1140-2 (PHYS CHEM)

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYMERIZATION, FORMALDEHYDE, TRIETHYLAMINE, CHEMICAL REACTION
  MECHANISM, NMR SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0719   STEP NO--UR/0020/70/190/005/1140/1142

CIRC ACCESSION NO--AT0124389
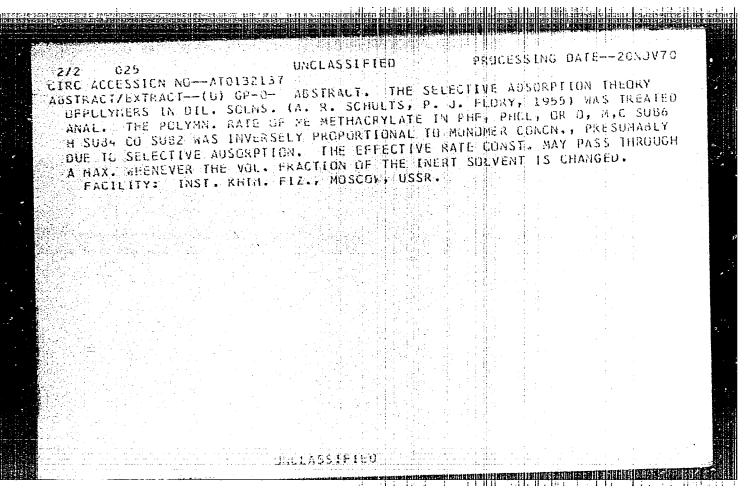   UNCLASSIFIED

CIRC ACCESSION NO--AT0124389
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. THE FOLLOWING 2 MECHANISMS ARE
CONSIDERED FOR THE ANIONIC POLYMN. OF HCHO IN THE PRESENCE OF ET SUB3 N:
(1) ET SUB3 N PLUS H SUB2 O IN EQUILIBRIUM TO ET SUB3 N PRIME POSITIVE
H PLUS OH PRIME NEGATIVE; OH PRIME NEGATIVE PLUS HCHO YIELDS HOCH SUB2
O PRIME NEGATIVE. THE POLYMER CHAIN GROWTH INVOLVES (HO(CHS UB2 O) SUBN
CH SUB2 O PRIME NEGATIVE)HNET SUB3 PRIME POSITIVE (I) AS THE ACTIVE
CENTER; H SUB2 O MUST BE PRESENT AS THE COCATALYST. (2) ET SUB2 N PLUS
HCHO YIELDS ET SUB3 N PRIME POSITIVE CH SUB2 O PRIME NEGATIVE.   THE
POLYMER CHAIN GROWTH INVOLVES THE ZWITTERION ET SUB3 N PRIME POSITIVE
(CH SUB2 O) SUBN CH SUB2 O PRIME NEGATIVE (II). HCHO WAS POLYMD. IN
PHME OR IN THE GAS PHASE IN THE PRESENCE OF ET SUB3 N. THE POLYMN.
MIXTS. WERE EXTD. WITH PHNO SUB2 AT 100DEGREES. THE EXTS. DID NOT HAVE
COMPDS. OF TYPE II AS SHOWN BY COMPARING NMR SPECTRA OF THE EXTS. WITH
THE SPECTRUM OF (ET SUB3 NCH SUB2 OME) PRIME POSITIVE CL PRIME NEGATIVE.
THUS, MECHANISM (1), POSSIBLY ALSO INVOLVING FAST PROTON EXCHANGE (E.
K. RALPH, ET AL., 1967), IS PREFERRED.   FACILITY: INST. KHIM.
FIZ., MOSCOW, USSR.

PROCESSING DATE--04DEC70

TITLE--BASICITY AND REACTIVITY OF ACETALS -U-

AUTHOR-(05)-VASILYEV, N.I., VOLKOV, V.P., IRZHAK, V.I., TELEGIN, G.F.,
YENIKOLOPYAN, N.S.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(3), 579-83

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ACETAL, SOLUTION ALKALINITY, ALKOXIDE, SILANE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605012/002 STEP NO--UR/0195/70/011/003/0579/0583

CIRC ACCESSION NO--AP0140285

UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2   008
CIRC ACCESSION NO--AP0140285
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BASICITY OF 10 ACETALS WAS
DETD. BY IR SPECTROSCOPY BY THE SHIFT OF UPSILON SUBOH DUE TO ASSOCN.
WITH PHOH.   ALL INVESTIGATED ACETALS ARE VERY WEAK BASES (KAPPA
SUBASSOCN. LESS THAN 4.1) AND THEIR BASICITY DOES NOT AFFECT THEIR.
REACTIONS WITH ALKOXY SILANES.   FACILITY: INST. KHIM. FIZ.,
CHERNOGOLOVKA, USSR.

UNCLASSIFIED

1/   2   023
TITLE--THERMODYNAMICS OF FORMALDEHYDE TRIOXANE POLYFORMALDEHYDE SYSTEM -U-

AUTHOR--BERLIN, A.A., VOLFSON, S.A., OLEINIK, E.F., YENIKOLOPYAN, N.S.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN. SER. A 1970, 12(2), 443-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMODYNAMICS, IR SPECTRUM, FORMALDEHYDE, TRIOXANE,
 POLYFORMALDEHYDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0245   STEP NO--UR/0459/70/012/002/0443/0449

CIRC ACCESSION NO--AP0106901

CIRC ACCESSION NO--AP0106901
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR SPECTRA OF HCHO (G) AND
TRIOXANE (G) (I) ARE DIFFERENT. IR SPECTROSCOPY HAS USED TO DET. THE
RELATIVE AMTS. OF HCHO AND I IN THE VAPOR PHASE ABOVE SOLID
POLYFORMALDEHYDE (II) IN THE 25-72DEGREES RANGE. FROM THE RELATIVE
CONCNS., AND THE REPORTED THERMODYNAMIC PROPERTIES OF HCHO, I, AND II,
THE THERMODYNAMIC PARAMETERS OF HCHO AND I POLYMN. WERE CALCD. THE
ACTIVATION ENTHALPY, ENTROPY, AND FREE ENERGY ARE GIVEN OF SOLID OR LIQ.
II FORMATION FROM LIQ. OR GASEOUS HCHO AND LIQ., GASEOUS, OR SOLID I.

UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--20NOV70

1/2   025

TITLE--SELECTIVE ADSORPTION IN MACROMOLECULAR SOLUTIONS AND RATE CONSTANTS
   OF POLYMERIZATION ELEMENTARY STEPS -U-

AUTHOR-(02)-KOZLOV, S.V., YENIKOLOPYAN, N.S.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(4), 839-40

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYMERIZATION, ADSORPTION, CHEMICAL REACTION RATE, METHYL
   METHACRYLATE, BENZENE DERIVATIVE, FLUORINATED ORGANIC COMPOUND,
   CHLORINATED ORGANIC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1875   STEP NO--UR/0020/70/191/004/0839/0840

CIRC ACCESSION NO--AT0132137
UNCLASSIFIED

CIRC ACCESSION NO--AT0132137
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SELECTIVE ADSORPTION THEORY
OFPOLYMERS IN OIL. SOLNS. (A. R. SCHULTS, P. J. FLORY, 1955) WAS TREATED
ANAL. THE POLYMN. RATE OF ME METHACRYLATE IN PHF, PHCL, OR O, M,C SUB6
H SUB4 CO SUB2 WAS INVERSELY PROPORTIONAL TO MONOMER CONCN., PRESUMABLY
DUE TO SELECTIVE ADSORPTION. THE EFFECTIVE RATE CONST. MAY PASS THROUGH
A MAX. WHENEVER THE VOL. FRACTION OF THE INERT SOLVENT IS CHANGED.
FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2   023   UNCLASSIFIED   PROCESSING DATE--11DEC70
TITLE--FEATURES OF ACRYLONITRILE POLYMERIZATION INITIATED WITH
   TRIETHYLPHOSPHINE IN TETRAHYDROFURAN AND DIMETHYLFORMAMIDE -U-
AUTHOR--(04)-KOCHETOV, E.V., BERLIN, A.A., MASALSKAYA, E.M., YENIKOLOPYAN,
   N.S.
COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(5), 1118-26

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ACRYLONITRILE, POLYMERIZATION, AMIDE, CHEMICAL REACTION
   KINETICS, PHOSPHATE ESTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1375   STEP NO--UR/0459/70/012/005/1118/1126

CIRC ACCESSION NO--AP0135049
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0135049
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POLYMN. KINETICS OF H SUB2
C:CHCN (I) IN HCONME SUB2 (II) OR TETRAHYDROFURAN (III) SOLNS. CONTG. ET
SUB3 P WERE STUDIED. THE POLYMN. FOLLOWED 1ST ORDER KINETICS IN RESPECT
TO ET SUB3 P AND 2ND ORDER IN RESPECT TO I IN II SOLN. THE MOL. WT. OF
THE POLYMER DECREASED WITH CONVERSION, WAS INDEPENDENT OF ET SUB3 P
CONCN., AND INCREASED LINEARLY WITH INCREASING I CONCN. IN II OR WITH
THE SQUARE OF I CONCN. IN III SOLN.   THE INITIATION RATE CONST.
INCREASED WITH INCREASING I CONCN. IN III.   FACILITY: INST.
KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2   031   UNCLASSIFIED   PROCESSING DATE---30OCT70
TITLE--POLYMERIZATION OF BENZENE UNDER ULTRAHIGH PRESSURE CONDITIONS
  COMBINED WITH SHEAR STRAIN -U-
AUTHOR-(04)-CHISTOTINA, N.P., ZHAROV, A.A., KISSIN, YU.V., YENIKOLOPYAN,
  N.S.
COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(3), 632-4 (PHYS CHEM)

DATE PUBLISHED------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYMERIZATION, ULTRAHIGH PRESSURE, SHEAR STRESS, BENZENE,
  POLYMER STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0726   STEP NO--UR/0020/70/191/003/0632/0634
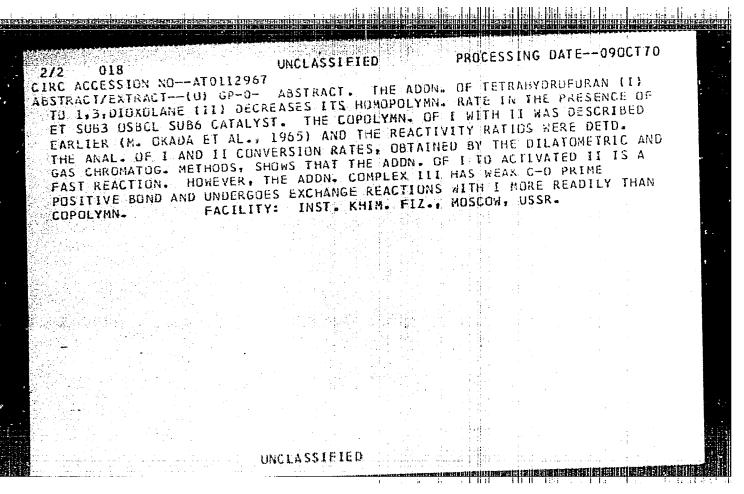
CIRC ACCESSION NO--AT0124396
                   UNCLASSIFIED

2/2   031   UNCLASSIFIED   PROCESSING DATE---30CT70
CIRC ACCESSION NO---AT0124396
ABSTRACT/EXTRACT---(U) GP-0- ABSTRACT. PRUIFIED C SUB6 H SUB6 WAS POLYMD.
 IN A BRIDGEMAN ANVIL LIKE APP. UNDER A PRESSURE OF 85,000 ATM AT TEMPS.
 OF 0 TO MINUS 5DEGREES AND AT A SHEAR OF 75DEGREES (UNCER AR OR AIR).
 SPECTRAL DATA REVEALED THAT THE BROWN PRODUCTS HAD A POLYENE STRUCTURE.
      FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2   011   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--EFFECT OF DIETHYL ETHER ON THE RATE OF METHYLALETHYLAL EXCHANGE
  UNDER THE INFLUENCE OF TIN TETRACHLORIDE -U-
AUTHOR-(03)-IVANOV, V.V., SABIROVA, R.D., YENIKOLOPYAN, N.S.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(2), 388-90 (PHYS CHEM)

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ETHYL ETHER, EXCHANGE REACTION, TIN CHLORIDE, COMPLEX
  COMPOUND, CHEMICAL REACTION RATE, BENZENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0701   STEP NO--UR/0020/70/191/002/0388/0390

CIRC ACCESSION NO--AT0124373
                        UNCLASSIFIED

2/2   011
CIRC ACCESSION NO—AT0124373
ABSTRACT/EXTRACT—(U) GP-0-   ABSTRACT. THE TITLE REACTION WAS DICUSSED IN
TERMS OF INTERMEDIATE FORMATION OF $SnCl_4$ COMPLEXES AND OXONIUM
SALTS. A REACTION SYSTEM OF METHYLAL, ETHYLAL, C_6H_6 ET $SUB2$
O, $SnCl_4$ WAS EXAMD. AT 20DEGREES FOR INITIAL REACTION RATE;
ALTERATION OF THE REACTION RATE BY ADDN. OF ET $SUB2$ O IS NOT CONNECTED
WITH ALTERATION OF MOISTURE CONTENT IN THE SYSTEM. THE EFFECT OF ADDED
ET $SUB2$ O AFFECTS THE KINETICS OF REACTIONS PROCEEDING UNDER THE
INFLUENCE OF LEWIS ACIDS; THERE IS A LINEAR RELATION BETWEEN THE CONCN.
OF ADDED ET $SUB2$ O AND (W-W $SUB1$), L WHERE W IS THE INITIAL RATE WITHOUT
ADDN. OF ET $SUB2$ O AND W $SUB1$ IS THAT WITH ADDED ET $SUB2$ O.
FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

1/2   015   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--DIFFUSION CONTROL OF CHAIN TERMINATION AND MOLECULAR WEIGHT
   DISTRIBUTION IN RADICAL POLYMERIZATION -U-
AUTHOR-(04)-KOZLOV, S.V., KAMENOMOSTSKAYA, S.L., OVCHINNIKOV, A.A.,
   YENIKOLOPYAN, N.S.
COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(5), 1063-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

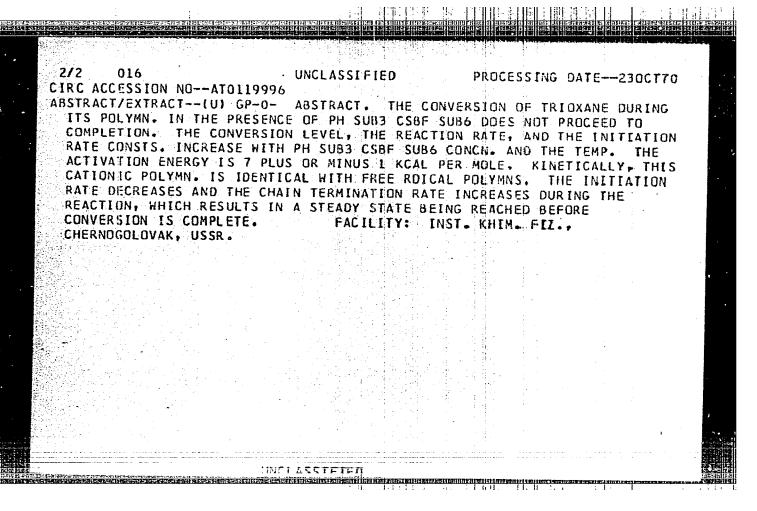TOPIC TAGS--REACTION KINETICS, RADICAL POLYMERIZATION, MOLECULAR WEIGHT

CONTROL MARKING--NO RESTRICTIONS
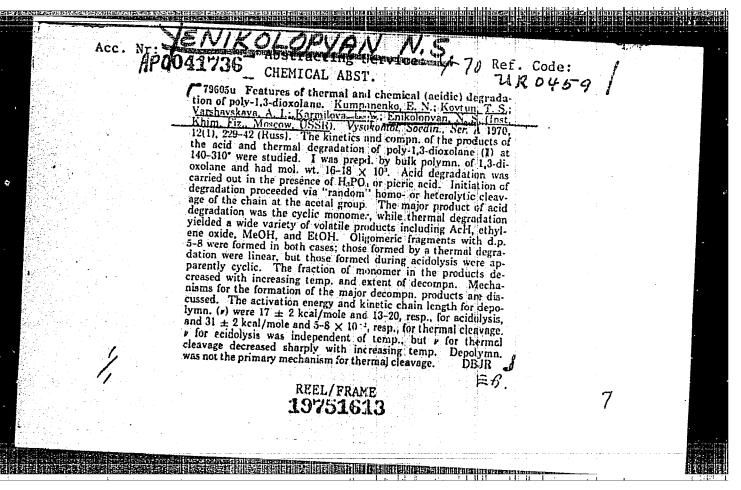
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1871   STEP NO--UR/0020/70/191/005/1063/1065

CIRC ACCESSION NO--AT0132133
                    UNCLASSIFIED

2/2   015   UNCLASSIFIED   PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AT0132133
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MATH. RELATIONS ARE DEVELOPED TO
EXPRESS THE DEPENDENCE OF CHAIN TERMINATION KINETICS AND MOL. WT.
DISTRIBUTION ON DIFFUSION CONTROL IN RADICAL POLYMN.   FACILITY:
INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2   018   UNCLASSIFIED   PROCESSING DATE--09OCT70
TITLE--INFLUENCE OF MUTUAL INHIBITION DURING THE SIMULTANEOUS
POLYMERIZATION OF CYCLIC ETHERS AND CYCLIC ACETALS -U-
AUTHOR-(04)-YEFREMOVA, A.I., PONOMAREVA, T.I., ROZENBERG, B.A.,
YENIKOLOPYAN, N.S.
COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(4), 872-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--FURAN, ORGANIC OXYGEN COMPOUND, POLYMERIZATION, AROMATIC
ETHER, ACETAL, ORGANOANTIMONY COMPOUND, CATALYST, GAS CHROMATOGRAPHY,
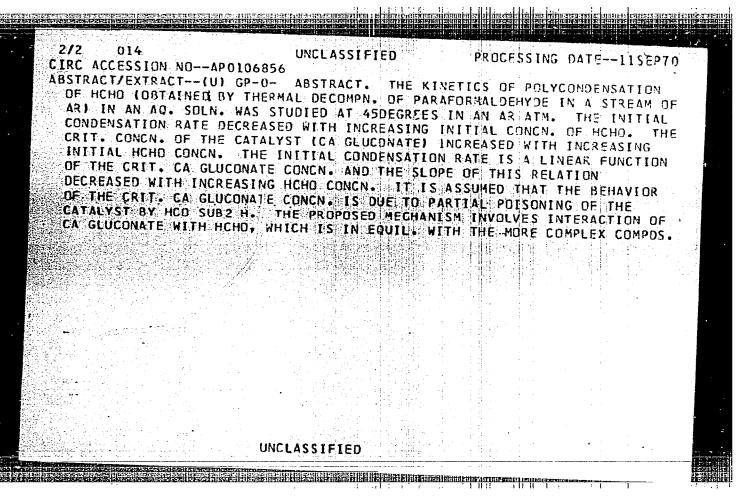COMPLEX COMPOUND, EXCHANGE REACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/2012   STEP NO--UR/0020/70/190/004/0872/0875

CIRC ACCESSION NO--AT0112967
                         UNCLASSIFIED

CIRC ACCESSION NO--AT0112967
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. THE ADDN. OF TETRAHYDROFURAN (I)
TO 1,3,DIOXOLANE (II) DECREASES ITS HOMOPOLYMN. RATE IN THE PRESENCE OF
ET SUB3 OSBCL SUB6 CATALYST. THE COPOLYMN. OF I WITH II WAS DESCRIBED
EARLIER (M. OKADA ET AL., 1965) AND THE REACTIVITY RATIOS WERE DETD.
THE ANAL. OF I AND II CONVERSION RATES, OBTAINED BY THE DILATOMETRIC AND
GAS CHROMATOG. METHODS, SHOWS THAT THE ADDN. OF I TO ACTIVATED II IS A
FAST REACTION. HOWEVER, THE ADDN. COMPLEX III HAS WEAK C-O PRIME
POSITIVE BOND AND UNDERGOES EXCHANGE REACTIONS WITH I MORE READILY THAN
COPOLYMN.   FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2   019   UNCLASSIFIED   PROCESSING DATE--09OCT70
TITLE--EFFECT OF WATER, METHANOL, FORMIC ACID, AND METHYLAL ON GAS PHASE
POLYMERIZATION OF FORMALDEHYDE IN AN OPEN SYSTEM -U-
AUTHOR-(03)-PENCHEV, P.I., IVANOV, V.V., YENIKOLOPYAN, N.S.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(2), 329-35

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--WATER, METHANOL, FORMIC ACID, POLYMERIZATION,
POLYFORMALDEHYDE, MOLECULAR WEIGHT, TRIETHYLAMINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0318   STEP NO--UR/0459/70/012/002/0329/0335

CIRC ACCESSION NO--AP0111512
                        --------UNCLASSIFIED

CIRC ACCESSION NO--AP0111512
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF THE TITLE ADDITIVES
ON THE YIELD AND MOL. WT. OF POYFORMALDEHYDE (I), OBTAINED BY GAS PHASE
POLYMN. OF HCHO IN AN OPEN SYSTEM IN THE PRESENCE OF ET SUB3N, WERE
STUDIED. STEADY STATE TREATMENT OF EXPTL. DATA REVEALED THAT H SUB2 O
AND MEOH ACTED AS COCATALYSTS WITH ET SUB3N, WHEREAS HCO SUB2 H
INHIBITED THE POLYMN. (BY REACTING WITH ET SUB3N), AND CH SUB2(OME)SUB2
HAD NO EFFECT. THE YIELD OF I WAS INDEPENDENT OF THE H SUB2 O CONTENT,
BUT THE MOL. WT. DECREASED IN THE PRESENCE OF H SUB2 O. H SUB2 O, MEOH,
AND HCO SUB2 H EFFECTED CHAIN TRANSFER IN THE REACTIVITY RATIO
1.0:1.7:6.5, RESP. MEOH ALSO MODIFIED THE AV. MOL. WT. OF I BY CHAIN
TRANSFER WITH FORMATION OF STABLE TERMINAL MEO GROUPS.

UNCLASSIFIED

1/2   016   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--TRIOXANE POLYMERIZATION IN THE PRESENCE OF TRITYL
   HEXAFLUOROANTIMONATE -U-
AUTHOR-(04)-SMIRNOV, YU.N., VOLKOV, V.P., IRZHAK, V.I., YENIKOLOPYAN, N.S.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(6), 1403-6 (PHYS. CHEM.)

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--TRIOXANE, POLYMERIZATION KINETICS, FLUORINATED ORGANIC
   COMPOUND, ORGANOANTIMONY COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1142   STEP NO--UR/0020/70/190/006/1403/1406

CIRC ACCESSION NO--AT0119996
                        UNCLASSIFIED

CIRC ACCESSION NO--AT0119996

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONVERSION OF TRIOXANE DURING
ITS POLYMN. IN THE PRESENCE OF PH SUB3 CSBF SUB6 DOES NOT PROCEED TO
COMPLETION. THE CONVERSION LEVEL, THE REACTION RATE, AND THE INITIATION
RATE CONSTS. INCREASE WITH PH SUB3 CSBF SUB6 CONCN. AND THE TEMP. THE
ACTIVATION ENERGY IS 7 PLUS OR MINUS 1 KCAL PER MOLE. KINETICALLY, THIS
CATIONIC POLYMN. IS IDENTICAL WITH FREE RDICAL POLYMNS. THE INITIATION
RATE DECREASES AND THE CHAIN TERMINATION RATE INCREASES DURING THE
REACTION, WHICH RESULTS IN A STEADY STATE BEING REACHED BEFORE
CONVERSION IS COMPLETE.   FACILITY: INST. KHIM. FIZ.,
CHERNOGOLOVAK, USSR.

UNCLASSIFIED

Acc. Nr: *ENIKOLOPYAN N.S*
AP0041736 Abstracting Service: CHEMICAL ABST. Ref. Code: *UR 0459*

79605u **Features of thermal and chemical (acidic) degradation of poly-1,3-dioxolane.** Kumpanenko, E. N.; Kovtun, T. S.; Varshavskaya, A. L.; Karmilova, L. V.; Enikolopyan, N. S. (Inst. Khim. Fiz., Moscow, USSR). *Vysokomol. Soedin., Ser. A* 1970, 12(1), 229-42 (Russ). The kinetics and compn. of the products of the acid and thermal degradation of poly-1,3-dioxolane (I) at 140-310° were studied. I was prepd. by bulk polymn. of 1,3-dioxolane and had mol. wt. 16-18 × 10³. Acid degradation was carried out in the presence of H₃PO₄ or picric acid. Initiation of degradation proceeded via "random" homo- or heterolytic cleavage of the chain at the acetal group. The major product of acid degradation was the cyclic monomer, while thermal degradation yielded a wide variety of volatile products including AcH, ethylene oxide, MeOH, and EtOH. Oligomeric fragments with d.p. 5-8 were formed in both cases; those formed by a thermal degradation were linear, but those formed during acidolysis were apparently cyclic. The fraction of monomer in the products decreased with increasing temp. and extent of decompn. Mechanisms for the formation of the major decompn. products are discussed. The activation energy and kinetic chain length for depolymn. (ν) were 17 ± 2 kcal/mole and 13-20, resp., for acidolysis, and 31 ± 2 kcal/mole and 5-8 × 10⁻⁴, resp., for thermal cleavage. ν for acidolysis was independent of temp.; but ν for thermal cleavage decreased sharply with increasing temp. Depolymn. was not the primary mechanism for thermal cleavage.   DBJR

E.B.

REEL/FRAME
19751613

7

1/2   014   UNCLASSIFIED   PROCESSING DATE--11SEP70
TITLE--POLYCONDENSATION OF FORMALDEHYDE IN WATER -U-

AUTHOR--GLOTOVA, YU.K., YENIKOLOPYAN, N.S.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(1), 41-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POLYCONDENSATION, FORMALDEHYDE, CHEMICAL REACTION MECHANISM,
CATALYST, COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0200   STEP NO--UR/0195/70/011/001/0041/0045

CIRC ACCESSION NO--AP0106856
                      UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF POLYCONDENSATION
OF HCHO (OBTAINED BY THERMAL DECOMPN. OF PARAFORMALDEHYDE IN A STREAM OF
AR) IN AN AQ. SOLN. WAS STUDIED AT 45DEGREES IN AN AR ATM. THE INITIAL
CONDENSATION RATE DECREASED WITH INCREASING INITIAL CONCN. OF HCHO. THE
CRIT. CONCN. OF THE CATALYST (CA GLUCONATE) INCREASED WITH INCREASING
INITIAL HCHO CONCN. THE INITIAL CONDENSATION RATE IS A LINEAR FUNCTION
OF THE CRIT. CA GLUCONATE CONCN. AND THE SLOPE OF THIS RELATION
DECREASED WITH INCREASING HCHO CONCN. IT IS ASSUMED THAT THE BEHAVIOR
OF THE CRIT. CA GLUCONATE CONCN. IS DUE TO PARTIAL POISONING OF THE
CATALYST BY HCO SUB2 H. THE PROPOSED MECHANISM INVOLVES INTERACTION OF
CA GLUCONATE WITH HCHO, WHICH IS IN EQUIL. WITH THE MORE COMPLEX COMPDS.

UNCLASSIFIED

Acc. Nr:
AP0052534   Abstracting Service: Ref. Code:
               CHEMICAL ABST. 5-70   4R0460

YENIKOLOPYAN   N.S.

101209s "Condensation" of a polymer solution. Berlin, A.
A.; Savadyan, A. A.; Enikolopyan, N. S. (Inst. Khim. Fiz., Mos-
cow, USSR). Vysokomol. Soedin., Ser. B 1970, 12(1), 16-19
(Russ). Math. anal. of the thermodynamic characteristics of dil.
polymer solns. showed that when the polymer mols. have a ten-
dency to interact, forming coils, there is a crit. concn. (c) above
which there is a tendency toward formation of larger coils contg.
many mols. Under certain conditions, the polymer may form a
single, large dissolved coil. In a poor solvent or at the θ point c
= ∞. However, in a good solvent c < ∞. Also c decreases with
the increase in the mol. wt. of the undissocd. polymer.   CPJR

REEL/FRAME
19821177

USSR

UDC 621.762.3.001

AKSENOV, G. I., YENIN, N. YE., SIDNIKHIN, A. I.

"Problem of Chemical-Heat Treatment of Metal Powders in a Fluidized Bed"

Tr. Kuybyshev. aviats. in-t (Works of Kuybyshev Aviation Institute), 1970, vyp. 42, pp 69-75 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G425)

Translation: Problems connected with the hydrodynamics of the transition of a stationary layer of powder to a pseudoannealed layer are investigated. The gas flow rate was calculated by the O. M. Todes method. It was demonstrated that the experimental and calculated values are in good correspondence. A schematic is presented for a device for chemical-heat treatment of metal powders in a fluidized bed. There are 2 illustrations, 1 table, and a 4-entry bibliography.

1/1

KOSTIN, YU.A., YENIN, P.S., MALODITKO, A.P., MIKHEYEV, V.I.

"Securing Of Spiral Delay Line Of Vibration-Proof TWT"

Translation: A stable, easily-controlled and checked method is developed for
securing a delay line of the spiral type. Securing is accomplished by clinching
[osazhivaniye] the warmed-up glass for forming the bulb into the form of narrow
bands. The glass is clinched under the influence of a jet of nitrogen heated to
a high temperature. Evacuation of the bulb in the process of securing prevents
oxidation of the spiral delay line, and use of an electrical furnace for overall
heating and annealing of the bulb removes the emerging thermal stress. Summary.

1/1

USSR   UDC   577.4

YENIN, S. V.

"A Method of Obtaining a Locally Optimal Set of Verifying Tests
for Combination Systems"

Vychisl. tekhn. v mashinostr. Nauchn.-tekhn. sb. (Computer Tech-
niques in Machine Building, Scientific-Technical Collection)
1971, pp 182-190 (from RZh--Matematika, No 10, 1972, Abstract
No 10V429)

Translation: A method is proposed for synthesizing a locally op-
timal set of verifying tests for combination logic systems without
branching. The method can be realized using an electronic computer
and may be applied to large- scale   systems. Author's resume

1/1

- 5 -

USSR   UDC: 577.4

YENIN, S. V.

"A Method of Obtaining a Locally Optimum Set of Varifying Tests
of Combination Circuits"

Translation: A method is proposed for synthesizing a locally
optimum set of verification tests for combination logic circuits
without branchings. The method can be computerized and applied.
to large-scale circuits.

1/1

USSR

YENIN, S. V.

"The Problem of Construction of Tests for Combination Logic Circuits"

Vychisl. Tekhn. v Mashinostr. Nauch.-tekhn. sb. [Computers in Machine Building. Scientific and Technical Collection], June, 1971, pp 193-200 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V635 by Kh. Madatyan).

Translation: In earlier works, the author has described an algorithm for synthesis of checking tests for combination logic circuits without branching. In the present work, this algorithm is extended to allow it to be applied to circuits with branching. It is assumed that the circuit is based on AND, OR, NAND and NOR elements. A test is constructed for a circuit with one input, and the algorithm suggested allows a test to be constructed for an entire circuit with several inputs simultaneously. As the author notes, the algorithm can be easily programmed and applied to large circuits (several dozens of inputs and several hundreds of elements).

1/1

USSR

YEN'SHIN, A. V.

"Characteristics of the Wake behind Bodies Flying at Hypersonic Velocities"

Materialy 3-y Nauch. Konf. Tomsk. Un-ta po Mat. i Mekh. Vyp. 2 [Materials of Third Scientific Conference of Tomsk University on Mathematics and Mechanics, No 2 -- Collection of Works], Tomsk University Press, 1973, p 9 (Translated from Referativnyy Zhurnal Mekhanika, No 5, 1973, Abstract No 5B360).

Translation: The Khromos-Webb-Lees theory is studied as applicable to a blunt body flying at hypersonic velocity. An example is calculated for laboratory conditions $p_\infty = 1$ atm, $M = 8$. In order to determine the nonviscous enthalpy profile in the external wake, an analytic expression of Likudis is used, produced from the form of the bow shock wave at $\gamma = 1.4$ (approximate value), $P = P_\infty$. The distributions of enthalpy $H(x/d)$ in the internal wake and dependence of width of the wake $J/d(x/d)$ are produced.

1/1

TITLE--ON THE SIMILARITY OF EQUATIONS OF PLANE PERMEABILITY AND
  LONGITUDINAL SHEAR OF NONLINEAR ELASTIC AND PLASTIC BODIES -U-

AUTHOR--YENTOV, V.M.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, PRIKLADNAYA MATEMATIKA I MEKHANIKA, NO 1, 70, PP 162-171

DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--PLASTICITY, ELASTIC DEFORMATION, SHEAR STRESS, PERMEABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605041/C07 STEP NO--UR/0040/70/000/001/0162/0171

CIRC ACCESSION NO--AP0142729
                         UNCLASSIFIED

2/3   024   UNCLASSIFIED   PROCESSING DATE--11DEC70
CIRC ACCESSION NO--AP0142729
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SIMILARITY BETWEEN PLANE
PROBLEMS OF A NONLINEAR PERMEABILITY AND LONGITUDINAL SHEAR OF NONLINEAR
ELASTIC AND PLASTIC BODIES IS INVESTIGATED. FROM THE COMPARISON OF THE
SYSTEMS CHARACTERIZING A PLANE NONLINEAR PERMEABILITY AND THE STRESSES
DUE TO LONGITUDINAL SHEAR, TWO SYSTEMS FOR THE SIMILARITY BETWEEN
SIMILARITY PROBLEMS AND LINEARLY PARALLEL MOTIONS ARE DERIVED AND THE
SIMILAR PARAMETERS AND BOUNDARY CONDITIONS ARE INDICATED. EXAMPLES FOR
THE DISCUSSED SIMILARITY INCLUDE: A SPECIAL CASE OF A NONLINEAR RULE OF
PERMEABILITY, A HYDROGRAPH TRANSFORMATION USING THE ANALOGY WITH THE
DYNAMICS OF GASES, PERMEABILITIES WITH A LIMITING GRADIENT COMMENTED AS
PROBLEMS OF LONGITUDINAL SHEAR OF A RIGID PLASTIC BODY WITH STRAIN
HARDENING, AND AN ILLUSTRATED EXAMPLE OF THE DEFORMATION OF THE LAYER OF
A RIGID PLASTIC BODY WITH LINEAR STRAIN HARDENING SUBJECTED TO A POINT
FORCE AND WITH FIXED SIDE SURFACES. THE DEMONSTRATED SIMILARITY BETWEEN
PLASTICITY AND PERMEABILITY PROBLEMS PERMITS A DIRECT TRANSFER OF
CERTAIN VARIATIONAL PRINCIPLES OF THE DEFORMATION THEORY OF PLASTICITY
(NONLINEAR ELASTICITY) INTO THE THEORY OF PERMEABILITY. THESE
VARIATIONAL PRINCIPLES RETAIN THEIR MEANING ALSO FOR HETEROGENEOUS
MEDIA.   THE INVESTIGATION OF PERMEABILITY AREAS BOUNDED BY TWO
STREAMLINES AND TWO LINES OF EQUAL PRESSURE REVEALS THAT PRESSED INTO
THE PERMEABILITY AREA IMPENETRABLE BOUNDARY STREAMLINES EFFECT A
DECREASE AND LINES OF EQUAL PRESSURE AN INCREASE OF THE FLOW RATE.   ONE
OF THE BORDERING STREAMLINES PRESSED INTO THE PERMEABILITY AREA MAY
EFFECT ONLY A DECREASE OF STAGNANT ZONES ADJOINING THE OTHER STREAMLINE,

UNCLASSIFIED

3/3   024   UNCLASSIFIED   PROCESSING DATE--11DEC70
CIRC ACCESSION NO--AP0142729
ABSTRACT/EXTRACT--AN EXAMPLE DEMONSTRATES THAT THE STAGNANT ZONE GENERATED
NEAR THE WALL IN A FLOW FROM A SOURCE LOCATED AT A CERTAIN DISTANCE IS
GREATER THAN THE STAGNANT ZONE GENERATED BY THE SAME SOURCE IF LOCATED
BETWEEN THE WALLS.   IT IS CONCLUDED THAT IN VIRTUE OF THE DISCUSSED
SIMILARITIES, THE SPECIFIED STATEMENTS ARE VALID ALSO FOR PROBLEMS OF
LONGITUDINAL SHEAR OF PLASTIC BODIES.

UNCLASSIFIED

1/2   042
UNCLASSIFIED
TITLE--COATING TUBES BY THE THERMODIFFUSION METHOD -U-   PROCESSING DATE--04DEC70

AUTHOR-(04)-SHARADZENIDZE, S.A., KHARADZE, D.M., MINDLIN, I.G.,
   YENUKASHVILI, M.A.
COUNTRY OF INFO--USSR

SOURCE--MOSCOW, METALLURG., NO 5, MAY 70, PP 38-39

DATE PUBLISHED----MAY70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--SEA WATER, METALLURGIC PLANT, METAL TUBE, PETROLEUM REFINING,
   METAL CORROSION, ZINC PLATING, ALUMINUM COATING PROTECTIVE COATING,
   METAL COATING, DURABILITY, METAL SURFACE IMPREGNATION, METAL DIFFUSION,
   ANTICORROSION ADDITIVE, ALUMINIZING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0411   STEP NO--UR/0130/70/000/005/0038/0039

CIRC ACCESSION NO--AP0135882
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0135882   UNCLASSIFIED   PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TUBES REFERRED TO IN THE TITLE
ARE THOSE USED IN PETROLEUM REFINING. THESE TUBES MUST HAVE LONG
SERVICE LIFE AND ARE USUALLY SUBJECTED TO CHEMICALLY AGGRESSIVE MEDIA.
THE MOST EFFECTIVE COATINGS FOR SUCH TUBES ARE ZINC OR ALUMINUM APPLIED
BY THE THERMODIFFUSION METHOD. IN THIS METHOD, THE SURFACE LAYER OF THE
TUBE METAL IS IMPREGNATED TO A DEPTH OF 0.1-0.2 MM BY ZINC, ALUMINUM, OR
SOME OTHER ANTI CORROSIVE ELEMENT DIFFUSED AT A PARTICULAR TEMPERATURE.
TUBES COATED WITH ZINC BY THIS METHOD HAVE HIGHLY ANTI
CORROSIVECHARACTERISTICS, WITH A DURABILITY 15 TIMES THAT OF UNTREATED
TUBES IN A VARIABLE MEDIUM, SEA WATER AND AIR FOR EXAMPLE. IN THE
RUSTAV METALLURGICAL PLANT, THE THERMODIFFUSION METHOD IS OPERATED ON AN
INDUSTRIAL SCALE. A STEP BY STEP DESCRIPTION OF THE PROCESS IN GIVEN
TOGETHER WITH A SCHEMATIC DIAGRAM OF THE EQUIPMENT INVOLVED. SOME
FIGURES ARE GIVEN OF THE TUBE COATING PRODUCTION LEVELS FOR THIS PLANT.
     FACILITY: RUSTAV METALLURGICAL PLANT.

UNCLASSIFIED

USSR

SHARADZENIDZE, S. A., KHARADZE, D. M., MINDLIN, I. G. (Deceased),
YENUKASHVILI, M. A., Rustav Metallurgical Plant

UDC 621.774:621.793.6

"Coating Tubes by the Thermodiffusion Method"

Moscow, Metallurg., No 5, May 70, pp 38-39

Abstract: The tubes referred to in the title are those used in
petroleum refining. These tubes must have long service life and
are usually subjected to chemically aggressive media. The most
effective coatings for such tubes are zinc or aluminum applied by
the thermodiffusion method. In this method, the surface layer of
the tube metal is impregnated to a depth of 0.1-0.2 mm by zinc,
aluminum, or some other anti-corrosive element diffused at a par-
ticular temperature. Tubes coated with zinc by this method have
highly anti-corrosive characteristics, with a durability 15 times
that of untreated tubes in a variable medium -- sea water and air
for example. In the Rustav Metallurgical Plant, the thermodiffu-
sion method is operated on an industrial scale. A step-by-step
description of the process is given together with a schematic
diagram of the equipment involved. Some figures are given of the
1/1 tube-coating production levels for this plant.

- 6 -

USSR

OKUN', M. I., YEN'YAKOVA, P. A.

UDC 615.616.24-003.
656.6

"Problem of Fibrogen and Nature of Phospholipids of the Lungs in
the Presence of Silicosis"

V sb. Materialy XXI-XXII plenumov Resp. komis. po bor'be s
silikozom (Materials of the 21st to the 22nd Plenums of the
Republic Commission on Controlling Silicosis -- Collection of
Works, Kiev, Naukova dumka, 1972, pp 91-97 (from RZh--Farma-
kologiya, Khimioterapevticheskiye Sredstva, Toksikologiya, No 3,
Mar 73, Abstract No 3.54.871)

Translation: From the lungs of rats in the early (1.5-3 months
after intratracheal spraying with powdered quartz) or late (4-5
months after spraying with tridymite) stage of silicosis, phos-
pholipids were isolated. These phospholipids were administered
intratracheally to intact rats 3-8 times every 2 to 5 days. After
1.5 months, an increase in the collagen content in the lungs focal
swelling of the alveolar septa, a phagocytic reaction, and centers
of cellular reaction from cells with large oblong nuclei were
detected. In the lungs of one of the animals, a section of fibrous
cellular structure was detected under the pleura. The administra-
tion of phospholipids from the lungs of intact animals did not

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USSR

OKUN', M. I., YEN'YAKOVA, P. A., Materialy XXI-XXII plenumov Resp.
komis. po bor'be s silikozom, 1972, pp 91-97

cause pathological alterations. The conclusion was drawn of the
acquisition of fibrogenic activity by the phospholipids of lungs
with silicosis. The bibliography has 12 entries. USSR, Donetsk,
Institute of Hygiene of Labor and Professional Disease.

2/2

USSR

YENYUKOV, I. S., KOMOLOV, V. V.

UDC: 51:155.001.57:681.3.06

"Algorithms for Constructing Linear Discriminant Functions for Diagnosis of Two Illnesses"

Tr. VNII med. priborostr. (Works of the All-Union Scientific Research Institute of Medical Instrument Making), 1971, vyp. 1, pp 78-88 (from RZh- -Kibernetika, No 12, Dec 71, Abstract No 12V1023)

Translation: Equations are derived for determining the linear discriminant function which minimizes the loss function. The conditions of existence and uniqueness of the linear discriminant function are determined for the case of separation of two classes. Authors' abstract.

1/1

USSR   UDC: 51:155.001.57:681.3.06

YENYUKOV, I. S., KOMOLOV, V. V.

"Algorithms for Constructing Linear Discriminant Functions for Diagnosing
an Arbitrary Number of Illnesses"

Translation: A method is given for constructing a system of linear dis-
criminant functions for the case where there are more than two classes
to be separated. Authors' abstract.

UDC 519.281

USSR

YENYUKOV, I. S.

"Measurement of Discriminant Capacity of Characteristics Using Coefficients
of Linear Discriminant Functions"

Tr. VNII Med. Priborostr. [Works of Scientific Research Institute for Medical
Instrument Building], No 1, 1971, pp 93-96, (Translated from Referativnyy
Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V352)

NO ABSTRACT.

TITLE--STUDY OF THE PROPERTIES OF MOISTURE SORBED ON PEAT BY CALORIMETRY
AND NMR SPECTROSCOPY -U-
AUTHOR-(04)-VOLAROVICH, M.P., GAMAYUNOV, N.I., YEDDOKIMOV, B.V., KHORKOVA,
M.O.
COUNTRY OF INFO--USSR

SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 2, PP 182-188

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--MOISTURE MEASUREMENT, HYDROGEN BONDING, SOIL WATER,
CALORIMETRY, NMR SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/0394   STEP NO--UR/0069/70/032/002/0182/0188

CIRC ACCESSION NO--AP0113312
                              UNCLASSIFIED

PROCESSING DATE--16OCT70

2/2   011
CIRC ACCESSION NO--AP0113312
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROPERTIES OF SORBED MOISTURE
ON PEAT HAVE BEEN STUDIED BY CALORIMETRY AND NMR SPECTROSCOPY. THE
STUCTURE OF SORBED MOISTURE IS CHARACTERIZED BY DISORDERED WATER
MOLECULES BOUND BY HYDROGEN BONDS. THE STRUCTURE OF OSMOTIC MOISTURE
ALSO DIFFERS FROM THAT OF PURE WATER. THE AMOUNT OF CATIONS SORBED BY
PEAT AFFECTS THE EVAPORATION HEAT AND MOBILITY OF WATER MOLECULES.

5

USSR   UDC 677.4:54-171:539.16.04

STARKOVA, A. N., KIRILENKO, YU. K., SHAPIRO, YE. I., YEOS, A. L., VOL'F,
L. A., VISHNYAKOVA, T. P., VLASOVA, I. D., PANCHENKOV, G. M., and KAUCHAN-
SKIY, D. A.

"Radiation Resistant Polyamide Fiber"

Abstract: An attempt was made to increase the resistance of polyamide fiber
towards γ-radiation by treating it with ferrocene containing compounds.
Caprone cord fiber was treated with ferrocenealdehyde (FCA) under following
conditions: FCA - 3%; catalyst - 6.5% H_3PO_4; temperature - 75°C; duration -
2 hrs; solvent - ethanol. The fiber obtained was more resistant to thermo-
oxidative destruction than the starting material: after heating for 2 hrs
at 200°, the modified fiber retained 60-70% of the initial strength, while
the starting material dropped down to 25%. The modified fiber was found
to posses high adhesiveness towards the resin; it can be used in production
of hoses, conveyor belts, driving belts, etc, performing under radiation.

1/1

UDC 539.89 +
532.78

USSR

BERTMAN, A. A., YEPANCHINTSEV, O. G., Academician SAMARIN, A. M.(deceased),
CHERPOV, D. B. and SHENYAYEV, A. Ya., Institute of Metallurgy imeni A. A. Baykov,
Abademy of Sciences USSR

"Structure and Properties of Cast Iron Crystallized under High Pressure"

Abstract: Experiments have shown that pressures of the order of 1000 atmospheres
applied to melts during cooling markedly affect crystallization of metal and im-
proves its structure. This is especially true for alloys, including cast iron,
having so-called colloidal microinhomogeneities. The structure and properties
of cast iron melted and crystallized under pressures of 3 to 30 kbar are studied.
Barothermic tests were made on gray cast iron having the eutectic composition of
3.8% C, 2% Si, 0.3% Mn, 0.25% S, and 0.15%P. The sample was heated to 1200°C
under 30 kbar pressure. The test pressure was applied by a 200-ton press and
was reached in 3 minutes, whereupon the sample was heated. The sample melted at
approximately 1190°C and was held at 1200°C for 1 to 2 minutes. Then the sample
was cooled slowly (~ 3 deg/sec) or rapidly (~ 200 deg/sec) to room temperature.
1/2

USSR

BERTMAN, A. A., et al, Doklady Akademii Nauk SSSR, Vol. 195, No. 1, pp 67-70, 1970

Pressure was then removed. The initial structure of the samples was perlitic, with branching inclusions of graphite. After barothermic processing, the graphite inclusions disappeared. Slowly-cooled samples exhibited a structure typical of pre-eutectic white cast iron with primary austenitic dendrites and ledeburite. Elevated pressure noticeably increases the quantity of austenite and produces a fine structure. Metallographic analysis showed a dark component at the boundaries of the austenite dendrites and fine inclusions of a light phase. The dark phase was enriched with Si; and the light, with Mn. Both contained carbon. The structure of the fast-cooled sample resembled tempered steel and had dark needle-like components reminiscent of martensite. The hardness of the slowly-cooled samples increased by a factor of almost 3 as compared to the original metal, and wear resistance increased sharply. Orig. art. has 8 refs.

2/2

1/2   024   UNCLASSIFIED   PROCESSING DATE--18SEP70
TITLE--ROLE OF AN OXIDE FILM IN THE FORMATION OF VACANCY FIGURES ON AN
ALUMINUM SURFACE -U-
AUTHOR-(02)-YEPANCHINTSEV, O.G., CHISTYAKOV, YU.D.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (1) 150-1

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--ALUMINUM SURFACE, SURFACE FILM, METAL SURFACE PROPERTY,
THERMAL EFFECT, OXIDE, CRYSTAL VACANCY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0551   STEP NO--UR/0370/70/000/001/0150/0151

CIRC ACCESSION NO--AP0105536
                            UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105536

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE INTERACTION OF THE DEGREE OF SUPERCOOLING DELTA TAU NEEDED FOR INITIATION OF NUCLEI OF VACANCY FIGURES ON THE SURFACE OF AL, AND THE TEMPERING TEMP., TAU SUBH SHOWED THAT WITH A RISE IN TAU SUBH THE MAGNITUDE DELTA TAU FALLS IN ACCORD WITH THE DERIVED EXPRESSION DELTA TAU EQUALS ALPHA TAU SUBH PRIMETHREE-HALVES MINUS BETA TAU SUBH PRIME2, WHERE ALPHA AND BETA ARE COEFFS. AFTER ACHIEVING A CERTAIN VALUE TAU SUBH THERE IS A CHANGE IN THE SLOPE OF CURVE DELTA TAU EQUALS F(TAU SUBH), WHICH IS RELATED TO THE CHANGE IN THE TEMP. REGION OF THE FORMATION OF THE OXIDE FILM ON THE AL SURFACE. THE IMPORTANT ROLE OF THE OXIDE FILM ON THE AL SURFACE IN THE DEVELOPMENT AND FURTHER GROWTH OF THE VACANCY FIGURES WAS CONFIRMED.

UNCLASSIFIED

USSR   UDC: 621.317.8(088.8)

YEPANESHNIKOVA, V. Ye., Krasnodar Plant of Electric Measuring Instruments

"A Method of Making Printed-Circuit Resistors"

USSR Author's Certificate No 275201, filed 11 Nov 68, published 26 Oct 70
(from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V311 P)

Translation: This Author's Certificate introduces a method of making printed-
-circuit resistors based on photochemical etching of the blank sections of
a resistive layer applied to a dielectric substrate, coating the surface of
the resistor blank with a layer of varnish, and adjusting the value of the
resistor to the rated value, for instance by passing an electric current
through the resistor. As a distinguishing feature of the patent, the method
is designed to improve the stability of the value of the resistor when it is
subjected to destabilizing factors, and to reduce divergence of the tempera-
ture characteristics of the resistors. After photochemical etching, the
surface of the blank is treated with a 20-30% aqueous solution of ammonia
in distilled water with a concentration of 100-500 ml/l for 0.5-5 hours at a
temperature which does not reduce the concentration of the solution below
100 ml/l, e. g. at room temperature.

1/1

USSR

UDC: 621.316.849.002

YEPANESHNIKOVA, V. Ye., Krasnodar "Order of the Red Banner of Labor" Electric Measuring Instrument Plant

"A Method of Making Printed-Circuit Resistors"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 22, 1970, Soviet Patent No 275201, Class 21, filed 11 Nov 68, p 48

Abstract: This Author's Certificate introduces a method of making printed-circuit resistors based on photochemical etching of blank sections of a resistive layer applied to a dielectric substrate, coating the surface of the intermediate resistor with a layer of varnish, and adjusting the resistance of the completed unit to the rated value, for instance by passing an electric current through the resistor. As a distinguishing feature of the patent, the value of resistors is kept stable when they are subjected to destabilizing factors, and the divergence of the temperature characteristics of the resistors is reduced by following photochemical etching with treatment of the surface of the intermediate product in a 20-30 percent aqueous solution of ammonia in distilled water with a concentration of 100-500 milliliters per liter at a temperature which does not reduce the concentration of the solution below 100 milliliters per liter, for instance at room temperature.

1/1

USSR
BOKUN, I. A., YEPANOV, Yu. G.

"Heat Exchange and Hydrodynamics of the Pulsating Bed in a Conical Apparatus with Tangential Gas Inlet"

Teplo. i Massoperenos. T. 5, Ch. 2 [Heat and Mass Transfer, Vol 5, Part 2 -- Collection of Works], Kiev, Nauk. Dumka Press, 1972, pp 28-33, (Translated from Referativnyy Zhurnal, Mekhanika, No 10, 1972, Abstract No 10 B1036 by V. A. Kernerman).

Translation: Results are presented from studies of the hydrodynamics of a bed and heat exchange between the heating surface and pulsating bed in a conical apparatus with tangential gas input. The aperture angle of the cone in an apparatus with intake diameter of 27.5 mm and outlet diameter 179 mm is 40°, the height of the conical section is 200 mm. Gas is fed in tangentially through two opposite apertures. Sand was used with equivalent diameters of 0.325 and 0.75 mm. The frequency of pulsations of the gas flow was 0.5, 1.0, 1.5 and 2.0 Hz. The total resistance of the gas distributor device and bed decreases with decreasing pulsation frequency; at the same time, the resistance of the gas-distributing device is practically independent of frequency. The dependence of the heat exchange factor on pulsation frequency has a maximum: the nature of its dependence on filtration rate is identical for pulsating and constant gas feed. In the cross

1/2

USSR

BOKUN, I. A., YEPANOV, Yu. G., Teplo. i Massoperenos. T. 5, Ch. 2, Kiev, Nauk. Dumka Press, 1972, pp 28-33.

section, the heat exchange factor passes through a maximum with increasing distance from the axis of the apparatus. On the axis, the heat exchange factor in the pulsating layer is higher than in a bed with constant feed.

2/2

1/2   010   UNCLASSIFIED   PROCESSING DATE--18SEP70
TITLE--THERMAL MAGNETIC PULSE METAL PROCESSING -U-

AUTHOR-(03)-BRON, O.B., YEPECHURIN, V.P., VERSHILOV, YU.I.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, KUZNECHNO-SHTAMPOVOCHNOYE PROIZVODSTVO, NO. 2, 1970, PP
  12-14
DATE PUBLISHED--------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., MATERIALS, MECH., IND.,
  CIVIL AND MARINE ENGR
TOPIC TAGS--MAGNETIC FIELD EFFECT, METALLURGIC FURNACE, ELECTRIC FURNACE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1985/0264   STEP NO--UR/0182/70/000/002/0012/0014

CIRC ACCESSION NO--AP0100774
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0100774
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS ARTICLE DESCRIBES A DEVICE
 WHICH COMBINES HIGH FREQUENCE HEATING WITH STRONG MAGNETIC FIELD PULSES
 FOR THE PURPOSE OF PROCESSING METALS BY PRESSURE. IN MOST MACHINES OF
 THIS TYPE, A MAGNETIC INDUCTION IN THE AIR GAP BETWEEN THE INDUCTOR AND
 THE SPECIMEN OF UP TO 100 WEBERS-M PRIME2 IS OBTAINED; THE RESULTING
 PRESSURE ON THE SPECIMEN IS THEREFORE INSUFFICIENT. THE DEVICE
 DESCRIBED IN THIS ARTICLE RECTIFIES THIS DEFICIENCY BY HEATING THE
 SPECIMEN BEFORE THE PROCESSING, A METHOD KNOWN AS THERMAL MAGNETIC PULSE
 METAL PROCESSING. THE INDUCTOR HERE PERFORMS A DOUBLE FUNCTION: IT
 HEATS THE SPECIMEN WITH HIGH FREQUENCY CURRENTS, AND CARRIES PULSED
 DISCHARGE CURRENTS FOR THE REQUIRED MAGNETIC FIELD PULSES. A CIRCUIT
 DIAGRAM OF THE DEVICE IS GIVEN. IT COMBINES THE CIRCUIT OF THE ORDINARY
 DEVICE PLUS A HIGH FREQUENCY OSCILLATOR OF 45 KILOVOLT AMPERES WITH A
 VOLTAGE OF 500 AND A FREQUENCY OF 10 KHZ. DRAWINGS OF THE SYSTEM OF
 WATER COOLING REQUIRED FOR THE INDUCTOR ARE SHOWN, TOGETHER WITH CURVES
 ILLUSTRATING THE DEFORMATION OF THE SPECIMEN AS A FUNCTION OF THE
 TEMPERATURES DEVELOPED BY THE DEVICE. THE AUTHORS CONCLUDE THAT THE
 METHOD OF THERMAL MAGNETIC PULSE CREATES THE CONDITIONS NECESSARY FOR A
 NUMBER OF ENGINEERING OPERATIONS DIFFICULT TO ATTAIN BY OTHER METHODS.

UNCLASSIFIED

USSR

UDC: 621.311.21.004(282.251.2)

BOCHKIN, A. E., LISKUN, E. E., YEPIFANOV, A. P., KOKOT, D. M., STARSHINOV, S. N., Engineers

"On Condition of Krasnoyarskaya GES Dam during First Years of Operation"

Abstract: The subject dam is 124 meters high. It has a triangular cross-section. The upstream face is vertical. It rests on granite rock.

    Measures were taken to prevent crack formation by controlling the temperature regime. 1,289 cracks were detected on the piers during the period from 1961 to 1968, which is one-third the number of cracks on Bratskaya GES.

    Joints between blocks were periodically inspected ultrasonically for three years after being cemented. Most of them showed increased strength, 20% indicated a slight opening of the joint near the edge.

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USSR

BOCHKIN, A.E., et al, Gidrotekhnicheskoye Stroitel'stvo, No 4, April 1971, pp 12-19

The filling of the reservoir started in 1967 and was completed in 1969. Temperature of water at various depths was monitored.

Seeping of water was observed because it is an indication of tension stresses on the upstream face. The seeping decreased from 1967 to 1969.

Vertical and horizontal displacements of various points of the dam were determined optically. Measurements indicated the settling of the foundation on the upstream face of the dam, probably due to the weight of water. Horizontal displacements reached 15 mm.

2/2

UDC 539.4:624.012

USSR

GARKUN, L. M., DOLMATOV, A. P., YEPIFANOV, A. P.

"Full-Scale Studies of Conditions of Surface Crack Formation in Massive Concrete Blocks of the Krasnoyarsk Hydroelectric Station Dam"

Tr. koordinats. soveshchaniy po gidrotekhn. (Transactions of the Coordinating Conference on Hydraulic Engineering), 1969, Vyp. 49, pp 33-41 (from RZh-Mekhanika, No 3, March 1970, Abstract No 3V880)

Translation: As the basis of the study, an instrumental-calculation method was used. The value of the limiting deformation of concrete is presented as the sum of elastic deformation, plastic deformation, and deformation on concrete creep. The latter can be obtained by a fairly exact theoretical approach. Elastic and plastic deformations are practically impossible to distinguish between in a specific case. Knowing elastic deformations from readings of strain gauges located 10 cm from the block face, and having data on the distribution of temperature between the core and the side faces, we can calculate the stresses at the lateral block surface. Dividing the stresses by the block surfaces calculated with allowance for creep, for the model of elastic-instantaneous deformations, the authors obtain the elastic deformation of the surface layers prior to vaulting of the block. Then we find the second component value of the limiting extensibility of the concrete from a function that is valid for an elastic half-space which

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USSR

GARKUN, L. M., et al., Tr. koordinats. soveshchaniy po gidrotekhn., 1969, Vyp. 49, pp 33-41 (from RZh-Mekhanika, No 3, March 1970, Abstract No 3V880)

includes already the plastic deformations of crack formation. The proposed method makes it possible to investigate the limiting extensibility of concrete under full-scale conditions of massive blocks as a function of the deformation gradient. The limiting deformation of extension when there are appreciable deformation gradients exceeds the similar value for the case of the homogeneous stressed state by more than two and a half times.   Z. L. Gil'gur

2/2

USSR

YEPIFANOV, A. S., MANENKOV, A. A., Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

"Toward a Theory of Relaxation in Nonhomogeneously Broadened EPR Lines"

Abstract: A detailed study is presented of relaxation in nonhomogeneously broadened lines taking into consideration the change in the average energy of dipole-dipole interactions and the spatial distribution of spins. The spin packet model of Portis [Phys. Rev. 104, 584, 1956] is used. The quantum-statistical method is used to obtain the relaxation curves as a function of the form of the probability density function of the cross-relaxation transitions in terms of the frequency. It is shown that for the case of considerably inhomogeneous broadening, the change in the average energy of dipole-dipole interactions does not introduce any changes into the technique of constructing probability density functions of cross-relaxation transition and does not effect the form of the relaxation curves.

1/1

USSR

MANENKOV, A. A., DARASELIYA, D. M., YEPIFANOV, A. S. (Lebedev Physics Institute, USSR Academy of Sciences)

"Relaxation in Nonuniformly Broadened EPR Lines"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, August 1970, pp 445-456

Abstract: Relaxation processes in nonuniformly broadened EPR lines are studied theoretically and experimentally. A theory is developed for strong nonuniform broadening, and allowance is made for cross-relaxation processes within the line. The shapes of the relaxation curves are assessed by the usual method of pulsed saturation as well as for the case of quenching of cross-relaxation in the line. Results of an experimental investigation of EPR lines of Nd^{3+} in $Ca_5(PO_4)_3F$ are presented. The variation with temperature of the relaxation rate under conditions of quenched cross-relaxation is studied. A method is developed for determining the probability density function for cross-relaxation transitions $w(x)$, where x is the frequency

1/2

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USSR

MANENKOV, A. A., et al, <u>Zhurnal Eksperimental'noy i Teoreti-</u>
<u>cheskoy Fiziki</u>, August 1970, pp 445-456

detuning. The function for the EPR Nd^{3+} line of $Ca_5(PO_4)_3F$ is
determined.

2/2

USSR   UDC 911.3.616.988.43

PODRESOVA, Ye. A., and YEPIFANOV, G. F.

"The Viability of Foot-and-Mouth Disease Virus on Environmental Objects"

V sb. Virusn. bolezni s.-kh. zhivotnykh. Ch. 2. (Virus Diseases of Farm
Animals -- collection of works. Part 2), Moscow, 1970, pp 194-195 (from
RZh-Meditsinskaya Geografiya, No 4, Apr 71, Abstract No 4.36.74)

Translation: Results of study of foot-and-mouth disease virus in pastures
and farm buildings at different seasons of the year are presented.

1/1

USSR   UDC 911.3.616.988.43 (571.1 571.5)

YEPIFANOV, G. F.

"Some Problems of Foot-and-Mouth Disease Epizootiology in Siberia"

Translation: Omskaya, Novosibirskaya, and Tyumenskaya Oblasts and Altayskiy
Kray have been foot-and-mouth disease areas for 70 years. The disease is
caused primarily by one type of agent and exchange takes place at the same
time throughout all areas. The rise and fall of the epizootic wave occurs
at the same time in all areas. In Tyumenskaya and Irkutskaya Oblasts,
Krasnoyarskiy Kray, Transbaikal and Primon'ye foot-and-mouth disease occurs
only in isolated years; the disease has no epizootic character. These
oblasts are separated from west Siberian foci of foot-and-mouth disease
by a zone of dense taiga. In northern Siberian regions also isolated by
taiga, foot-and-mouth disease occurs rarely. Significant outbreaks of
foot-and-mouth disease recurred after 3-5 years and were of type A_7 in
1956-1957; type O_{194} in 1962-1963; and type A_{22} in 1967-1968. Chief
carriers of the virus are people, transport, convalescing cattle, birds,
1/2

80

USSR

YEPIFANOV, G. F., Virusn. bolezni s.-kh. zhivotnykh. Ch. 2 (Virus Diseases of Farm Animals -- collection of works. Part 2), Moscow, 1970, pp 193 (from RZh-Meditsinskaya Geografiya, No 4, Apr 71, Abstract No 4.36.76)

wind, and dust storms. The seasonal peak for foot-and-mouth disease in Siberia is autumn-winter.

2/2

USSR

VOROB'YEV, N. N. and YEPIFANOV, G. V.

"Possible Win Vectors in Bimatrix Games"

Teoriya Igr [Games Theory -- Collection of Works], Yerevan, 1973, pp 110-113 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V462)

Translation: Suppose Γ = <A, B> is a bimatrix game. Vector (α, β) is called a possible win vector (p.w.v.) if strategies X, Y can be found for which (α, β) = (XAY^T, XBY^T). Suppose R(Γ) is the set of all p.w.v. The main results are: 1) any vector from R(Γ) is a p.w.v. either in a certain 2×2 subgame or in a certain subgame with three pure strategies for one player, one for the other. 2) R(Γ) is a quasi-star set (and, therefore, singly connected).

1/1

'USSR

UDC: 517.93

KOROBEYNIK, Yu. F. and YEPIFANOV, O. V., Rostov-on-Don

"Normal Solvability of One Class of Infinite-Order Differential Equations"

Moscow, Matematicheskiy Sbornik, vol. 84(126), No. 3, March 1971, pp 378-405

Abstract: This article is, in part, dependent on two earlier articles written by the first of the authors named above on the same subject. In those papers, an infinite-order differential equation with the polynomial coefficients

$$Ly(x) = \sum_{k=0}^{\infty} P_k(x)y^{(k)}(x) = f(x), \quad P_k(x) = \sum_{s=0}^{n_k} a_s^k x^s,$$

where the degrees of the polynomials $P_k(x)$ are obtained by the condition

$$P_0(x) \equiv a_0 \neq 0, \quad \sup_{k \geqslant 1} \frac{n_k}{k} = \alpha < 1,$$

are investigated.

1/2

KOROBEYNIK, U. F., et al, Matematicheskiy sbornik, vol. 84(126), No. 3, March 1971, pp 378-405

In the present paper, the condition just above is replaced by

$$\alpha_0 = \overline{\lim_{k \to \infty}} \, (n_k/k) < 1.$$

The article deals primarily with two specific and distinct local-convex spaces, obtained by topologizing two classes. In parti-cular, the important case of

$$\alpha_0 = \lim_{k \to \infty} \, (n_k/k) = 0$$

is considered, along with several other particular cases.

2/2

- 3 -

Turbine and Engine Design

USSR

UDC 629.7.03.001:533.6

EPIFANOV, V. M.

"Aerodynamic Investigation of Turbine Cascades With Thickened Trailing Edges"

Moscow, Sb. - Vysokotemperatur, Okhlazhdaemyye gaz turbiny Mashinostroyeniye (Symposium on High-Temperature Cooled Gas Turbines, Machinebuilding), 1971, pp 216-225 (from Referativnyy Zhurnal-Aviatsionnyye i Raketnyye Dvigetali, No 2, Feb 72, Abstract No 2.34.29)

Translation: A method is presented for the determination of aerodynamic characteristics (profile losses and exit flow angle) of a plane turbine cascade with thickned trailing edges. Known relations are used to calculate the friction losses, it remains to determine the wake losses. A refinement of the Flugel formula is presented, it gives the wake coefficient as a function of proportionality

1/2

UDC 621.385.032.11 → 621.52

USSR

SOLOV'YEV, A.V., TERENT'YEV, G.G., BRUK, S.G., LYTKIN, YU.V., YEPIFANOV, V.N., RUDIN, G.A.

"On The Use Of Type 'NORD' Magnetodischarge Pumps For Evacuation Of Microwave Devices"

Elektron. tekhnika. Nauchno-tekhn. sb. Tekhnol. i organiz. proiz-va (Electronic Technology. Scientific-Technical Collection. Technology And Organization Of Production), 1970, Issue 5(37), pp 57-60 (from RZh--Elektronika i yeye primenen-ive, No 2, February 1971, Abstract No 2A115)

Translation: Use of "NORD" magnetodischarge pumps with an evacuation rate of 25 and 100 l/sec in the production of microwave tubes makes it possible to in- crease the average useful life of the devices and the rate of output of suitable devices (by 5%) in comparison with that occuring with use of oil methods of evacuation. A unique vacuum system of evacuation stations is created with ident- ical rectifier blocks, equal dimensions of vacuum ducts and arrangement of the manometer data units [датчик]. For stable operation of the magnetodischarge pumps of the types indicated, it is necessary at monthly intervals to degas them at a temperature of 300--350° C (the NORD-100 for 5 hours and the NORD-25 for 3--3.5 hours), and also reliably to guard against the entrance of oil from the forevacuum pump. 2 ill. 1 tab. 3 ref. G.B.

1/1

1/2   033

UNCLASSIFIED

TITLE--USE OF GAS LASERS TO MEASURE THE FREQUENCY CHARACTERISTICS OF PHOTODETECTORS -U-

PROCESSING DATE--04DEC70

AUTHOR-(02)-YEPIFANOV, V.P., PETRASHKO, G.A.

COUNTRY OF INFO--USSR

SOURCE--RADIOTEKHNIKA I ELEKTRONIKA, VOL. 15, JUNE 1970, P. 1317, 1318

DATE PUBLISHED----JUN70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--HELIUM NEON LASER, SINGLE MODE LASER, PHOTOMULTIPLIER TUBE, AUTOMATIC FREQUENCY CONTROL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1020

STEP NO--UR/0109/70/015/000/1317/1318

CIRC ACCESSION NO--AP0136447

UNCLASSIFIED

CIRC ACCESSION NO--AP0136447   UNCLASSIFIED   PROCESSING DATE--04DEC70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MEASUREMENT OF THE FREQUENCY
RESPONSE OF PHOTOMULTIPLIERS USING BEAT FREQUENCY LIGHT SIGNALS FROM TWO
MIXED SINGLE MODE LASERS. TWO HE-NE LASERS WITH SLIGHTLY DIFFERENT
NEON ISOTOPE COMPOSITIONS WERE USED, RESULTING IN A 300-MHZ DIFFERENCE
IN NATURAL EMISSION FREQUENCIES. AUTOMATIC FREQUENCY CONTROL WAS USED
TO ENSURE PLUS OR MINUS 50-KHZ ACCURACY OVER A TUNABLE BEAT FREQUENCY
RANGE FROM 10 TO 1200 MHZ. THE FREQUENCY RESPONSE OF TWO
PHOTOMULTIPLIERS WAS MEASURED WITH THE SYSTEM, AND THE RESULTS ARE GIVEN
IN A GRAPH.

UNCLASSIFIED

USSR

UDC 548.55:66.046.5:669/85/86

CHUPRIKOV, G. Ye., and YEPIFANOVA, K. I.

"Distribution of Copper and Rare Earth Metals in the Process of Growing Single Crystals of Yttrium by Crucibleless Zone Melting"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 37-42

Translation: The distribution of copper and REM (gadolinium, holmium, dysposium) in yttrium is studied under actual conditions of czm. The selection of impurities for the study results from their significant influence on the physical properties of yttrium single crystals, the probability of their presence in the initial metal, plus the slight, frequently contradictory information available concerning their behavior during the crystallization process. It was established that during czm, copper can be almost completely eliminated from yttrium.

It is demonstrated that the REM impurities studied are distributed through the length of the zone-melted ingot evenly. The effective and equilibrium distribution factors of these impurities in yttrium are determined. 3 Tables; 6 Figures; 4 Bibliographic References.
1/1

USSR

YEPIFANTSEV, B. N.

"The Problem of Technical Realization of the Ideas of Speech Analysis"

Izv. Tomsk. Politekhn. In-ta. [News of Tomsk Polytechnical Institute], 1972, Vol 194, pp 139-142 (Translated from Referativnyy Zhurnal, Kiber- netika, No 3, Moscow, 1973, Abstract No 3 V753 by V. Gushchin).

Translation: This article discusses the methodological aspects of the problem of recognition of speech signals. Particular attention is turned to difficulties of technical realization of methods, related to the absolute description of an input signal and subsequent digital computer processing. Studying the method related to separation of a characteris- tic series of signs from a speech signal and their subsequent digital computer processing, the author concludes that it is necessary to involve man directly in the instruction of the processing system for recognition of the signal on the basis of its characteristics.
1/1

6508
CSO: 1843-W

- END -

USSR

UDC: 621.317.335.3.029.64

YEPIFANTSEV, Yu. F., ZHUKOV, O. K., KLEMENT'YEV, F. M., KULIKOV, V. M.,
LIBERMAN, Z. A., OGURTSOV, S. I.

"Measurement of the Permittivity of (Ba,Zn)TiO$_3$ Ceramic in the 3-cm Micro-
wave Band, and Evaluation of the Effect Which Destabilizing Factors Have
on Measurement Accuracy"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Re-
ports of the All-Union Scientific and Technical Conference on Radio Engineer-
ing Measurements. Vol. 1), Novosibirsk, 1970, pp 92-94 (from RZh-Radiotekh-
nika, No 1, Jan 71, Abstract No 1A357)

Translation: The authors investigate the dispersion of permittivity of
type (Ba$_{1-x}$Zn$_x$)TiO$_3$ ferroelectric crystals in the 3-cm frequency band using
a measurement installation whose block diagram is given. Permittivity is
calculated from the results of measurement of the microwave signal amplitude
and phase determined when specimens of various thicknesses are introduced
into the feedback circuit. The results of measurements made on three fre-
quencies (8,900, 10,000 and 10,800 MHz) are presented for four types with

1/2

USSR

YEPIFANTSEV, Yu. F., et al., Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1, 1970, pp 92-94

various values of x. The results show that barium titanate ceramic with 4 percent zinc has the least dispersion. The effect which destabilizing factors have on measurement precision is examined. Three illustrations. E. L.

2/2

USSR

YEPIFANTSEVA, I. V., ZHESTKOV, N. G., ZHUKOV, B. P. and ENTIN, S. B.

"Device for Modeling of Pulse-Frequency Modulation in Automatic Systems"

Otkrytiya Izobreteniya Promyshlennyye Obraztsy Tovarnyye Znaki, No 8, Feb 74, pp 142-3

Translation:This is a device for modeling of pulse-frequency modulation in automatic systems,containing an integrator,unit for reproduction of relay characteristics,and direct current voltage source, differing in that in order to expand the functional capabilities of the device, it contains two comparison units, a multiplication unit,and a functional converter, the output of which is connected to the input of the unit for reproduction of relay characteristics, while the inputs are connected to the input signal source and the output of the integrator; to one of the inputs of the latter is connected the direct current voltage supply through the contacts of the output relays of the comparison units, while the other output of the unit for reproduction of relay characteristics is also connected to the first input of the multiplication unit, the second input of which is connected to the input signal source.

1/1

USSR

YEPIKHIN, M. A., ZABOLEYEV-ZOTOV, V. V., PISAREV, S. P., SHASHIN, A. V.

UDC 669.018.298

"Effect of a Third, Previously Formed Phase on the Hardness of Certain Aging Alloys"

V sb. Metallovedeniye i prochnost' materialov. T. 3 (Physical Metallurgy and the Material Strength. Vol 3 — collection of works), Volgograd, 1971, pp 341-345 (from RZh-Metallurgy, No 4, Apr 72, Abstract No 41633)

Translation: A study was made of the hardness of aging alloys hardened simultaneously by particles of intermetallides isolated during the aging process and solid particles of a third previously formed phase of the Cr oxide and Al oxide type introduced into the melt (AK4 alloy with different amounts of additives of Cr oxide and BRA9 aluminum bronze powder with different Al oxide content). For the case of the bronze, a sharp drop in the hardness increment was observed on reaching a third phase concentration of 30-40 volumetric % whereas for the AK4 alloys this decrease was observed at 4-5 volumetric %. It is expedient to use a dispersion hardening base in order to increase the strength characteristics of the alloys hardened by disperse inclusions only for defined content of the third phase in it, considering also the size of the inclusions. Two illustrations and a 1-entry bibliography.
1/1

Mining, Petroleum, Geological

YEPINAT'YEVA, A. M.

"Determination of the Width of a Refractive Layer"

Abstract: A method has been proposed for determining the width of a refractive wave which is based on the combined use of hodographs of the leading wave from the layer surface and the reflected wave from its underside. The method can be used in those cases when the layer width is somewhat large and that the used wave in a specified interval of distances can be recorded separately. Layer width can be determined by the formula:

$$h^{*}_{2} = \sqrt{\Delta t v_{2}^{(1/2)} + (\Delta t \cdot v_{2}/2)^{2}}$$

where t--difference in time of the arrival of the reflected wave and leading wave to some point; --half the path of the reflected wave in the second layer; v_{2}--velocity in the second layer. Examples have been presented for processing seismic data and a comparison was conducted with layer widths as determined by seismic logging and VSP/expansion unknown/. Error of width determination amounts to 25%.
1/1

USSR

YEPISHEVA, S. M., KOLOMIYTSEV, M. A., CHARBADZE, L. A., Physics Institute of
the Georgian SSR Academy of Sciences

"Ratio of the Corrosion Products of 1Kh18N9T Stainless Steel in Water and Ion-
Exhange Resins of the Desalinization Filters of the Primary Circuit of the IRT
Nuclear Reactor"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, No 3, 1971, pp 597-599

Abstract: A study was made of the iron, chromium,and nickel content in indi-
vidual sections of the 1Kh18N9T stainless steel primary cooling circuit of the
IRT nuclear reactor of the Physics Institute of the Georgian SSR Academy of
Sciences to discover the causes of increased concentration of these impurities.
Resin samples taken from the ion-exchange filters of the circuit were analyzed,
and the content of the mentioned elements was calculated in the total volume of
the heat-exchange agent. The results show that the absorption of metal cations
by the KU-2 resin is selective -- iron and nickel are primarily sorbed. In
AV-17 resin which creates an alkaline environment in the filter (pH ~ 9),
separation of the insoluble hydroxides and mechanical holding of particles of
them takes place. As a result of the amphoteric nature of chromium, its ab-
sorption on the anion-exchange resin is so high that it exceeds the cation ab-
sorption by 2-3 times. As is obvious, the determining factor in the overall
1/2

USSR

YEPISHEVA, S. M., et al., Soobshcheniya Akademii Nauk Gruzinskoy SSR, No 3, 1971, pp 597-599

balance for iron and nickel is the content in the cation-exchange resin whereas for chromium, on the contrary, it is the content in the anion-exchange resin. Thus, the cause of the apparent relatively high concentration of metals present as steel additives in the water of the primary loop is the selectivity in the absorption of the cations by the ion-exchange resins. In the overall balance of the system the actual contents of the iron, chromium, and nickel are the same as for the initial steel, indicating uniform elution of the stainless steel components during corrosion.

USSR

YEPISHIN, V. A., KISELEV, V. K.

UDC   621.372.413

"A Plane-Parallel Open   Resonator With Circular Mirrors With Apertures in the Centers for Radiation Output"

Moscow, Radiotekhnika i Elektronika, vol 16, No 11, Nov 71, pp 2027-2031

Abstract: Analytical formulas are found within the framework of perturbation theory for the eigenfunctions and eigenvalues of quasi-optical cavities with flat circular reflectors having circular apertures in the centers. The energy losses per pass as calculated by an approximate formula derived in the paper are compared with the results of exact computer calculations given in the literature. Satisfactory coincidence is observed over a fairly extensive range of resonator parameters. One figure, bibliography of fifteen titles.

1/1

- 45 -

USSR

UDC: 621.372.413:535

YEPISHIN, V. A., KAMYSHAN, V. V., and VALITOV, R. A.

"Modeling Diffraction-Coupled Open Cavities in the Millimeter Wavelength Range"

Translation: Description is given of an experimental model of coupled resonators consisting of cylindrical mirrors for band frequency attenuation that are fastened perpendicular to the generating mirros. Results are reported of the determination of the diffraction losses for two or three coupled resonators. Three illustrations, bibliography of three. Author's abstract.

1/1

USSR

DYSSA, O. F., YEPISHIN, V. V., POKROVSKIY, B. G., SEMENYUK, A. L.

"Use of the Method of Maximum Likelihood for Processing of Measurement Results"

Otbor i Peredacha Inform. Resp. Mezhved. sb. [Collection and Processing of Information, Republic Interdepartmental Collection], No 29, 1971, pp 33-37, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V127 by the author's).

Translation: It is demonstrated that with a known form of distribution of the quantity measured, the optimal estimate of unknown parameters is provided by the method of maximum likelihood, using which the precise estimates of unknown parameters are determined and the position of the true and approximate regression curves are represented graphically within fixed confidence areas.

1/1

TITLE--NITRATION OF IODO DERIVATIVES OF IMIDAZOLE -U-

AUTHOR-(05)-NOVIKOV, S.S., KHMELNITSKIY, L.I., LEBEDEV, O.V., YEPISHINA,
  L.V., SEVOSTYANOVA, V.V.
COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (5), 664-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITRIC ACID, IODINATED ORGANIC COMPOUND, IMIDAZOLE, ORGANIC
  NITRO COMPOUND, HETEROCYCLIC NITROGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/E01 STEP NO--UR/0409/70/000/005/0664/0668

CIRC ACCESSION NO--AP0140303
UNCLASSIFIED

CIRC ACCESSION NO--AP0140303
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY THE ACTION OF HNO SUB3 OF
DIFFERENT CONCNS. (3, 50, AND 100PERCENT) ON IODOIMIDAZOLES, IODINE IS
SUBSTITUTED BY THE NO SUB2 GROUP AT THE 2 POSITION, WHICH IS INACTIVE IN
ELECTROPHILIC SUBSTITUTIONS IN ACID MEDIUM; 3PERCENT HNO SUB3 DOES NOT
GIVE ANY NITRO DERIV. WITH TRIIODOIMIDAZOLES. HNO SUB3-H SUB2 SO SUB4
ALSO SUBSTITUTES IODINE, BUT AT THE 4(5) POSITION.
2,4(5),DINITRO,5(4),IODOIMIDAZOLE (I) WAS PREPD. BY THE FOLLOWING 4
NITRATION ROUTES: (A) 2,4,5,TRIIODOIMIDAZOLE (II) (M. 191-2DEGREES) (1
G) WAS ADDED TO 40 ML HOT HNO SUB3 (D 1.32), AND THE MIXT. BOILED UNTIL
IODINE VAPOR CEASED TO EVOLVE; THE REACTION MIXT. FROM 14 RUNS, COMBINED
AND WORKED UP, GAVE 8 G I, M. 216-18DEGREES; (B)
1,2,4,5,TETRAIODOIMIDAZOLE (III) (0.8 G) WAS BOILED WITH 50 ML HNO SUB3
(D 1.32) TILL IODINE CEASED TO EVOLVE; III WENT INTO SOLN., AND A YELLOW
PPT. OF 1,2,5(5),TRIIODO,5(4), NITROIMIDAZOLE (IV) FORMED, WHICH IN TURN
ALSO WENT INTO SOLN. SLOWLY; WORKUP GAVE 0.2 G I; (C) REACTION OF
2,4(5),DIIODOIMIDAZOLE WITH HNO SUB3 IN CONDITIONS ANALOGOUS TO (A) GAVE
40PERCENT I; (D) SIMILARLY, TREATING 0.43 G 2,3,DIIODO,5,NITROIMIDAZOLE
(V) WITH 20 ML HNO SUB3 GAVE 70PERCENT I. SLOW HEATING OF 1 G II WITH
40 ML HNO SUB3 (D 1.32) GAVE 0.22 G IV, M. 350DEGREES. ADDN. OF 5.7 G
IV TO 100 ML 10PERCENT KI CAUSED DISSOLN. AND EVOLUTION OF IODINE;
WORKUP GAVE 1.9 G V M. 225-6.5DEGREES, ALSO PREPD. IN 55PERCENT YIELD BY
ADDING DROPWISE 0.4 ML HNO SUB3 (D 1.5) TO A COOLED SOLN. OF 4.46 G II
IN 40 ML CONCD. H SUB2 SO SUB4, DECOMPG. THE REACTION MIXT. WITH H SUB2
O, AND WASHING WITH KI SOLN. TO REMOVE IODINE.

UNCLASSIFIED

3/3   021   UNCLASSIFIED   PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AF0140303
ABSTRACT/EXTRACT--A MIXT. OF 5 G I AND 40 ML HNO SUB3 (D 1.5) WAS BOILED
  10 MIN TO GIVE 67PERCENT 2,4,5,TRINITROIMIDAZOLE M. 232-5DEGREES, ALSO
  OBTAINED FROM II AND III IN 26 AND 15PERCENT YIELDS, RESP., BY SIMILAR
  TREATMENT.   TO A SOLN. OF 3.2 G 2,4(5),DIIODOIMIDAZOLE IN 40 ML CONCO.
  H SUB2 SO SUB4 WAS ADDED DROPWISE IN THE COLD 0.4 ML HNO SUB3 (D 1.5) TO
  GIVE 1.5 G 2,IODO,4(5),NITROIMIDAZOLE (VI), M. 277-80DEGREES, ALSO
  OBTAINED IN 40PERCENT YIELD BY ADDING 3 ML HNO SUB3 (D 1.5) DROPWISE TO
  A SOLN. OF 0.5 G 2,IODOIMIDAZOLE IN 30 ML CONCO, H SUB2 SO SUB4, THEN
  HEATING TO 170DEGREES. HEATING VI 20 MIN AT 180DEGREES WITH H SUB2 SO
  SUB4,HNO SUB3 NITRATING MIXT. GAVE 20PERCENT 4,5,DINITROIMIDAZOLE, M.
  187-8DEGREES.   FACILITY: INST. ORG. KHIM. IM. ZELINSKOGO,
  MOSCOW, USSR.

UNCLASSIFIED

1/2   019   UNCLASSIFIED   PROCESSING DATE--02OCT70
TITLE--PHYSICAL PROPERTIES OF TIN ANTIMONIDE SINGLE CRYSTALS -U-

AUTHOR-(04)-YURKOV, V.A., YEPISHIN, I.G., TUGUSHEV, S.YR., SOSHNIKOV, V.A.

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CIRC ACCESSION NO--AP0105679
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF THE D.,
MICROHARDNESS, ELEC. COND., AND THERMAL EMF. MEASUREMENTS OF SNSB SINGLE
CRYSTALS ARE PRESENTED. THE AV. D. OF THESE CRYSTALS, DETD. BY THE
HYDROSTATIC WEIGHING METHOD, IS 6.81 G-CM PRIME3, WHICH IS SOMEWHERE
BETWEEN THE D. OF SN AND THAT OF SB. THE MICROHARDNESS WAS MEASURED ON
FRESHLY CLEAVED SINGLE CRYSTAL PLATELETS. THE MEASUREMENTS WERE TAKEN
WITH THE INDENTOR PARALLEL AND PERPENDICULAR TO THE CLEAVAGE PLANE OF
THE SAMPLES. VALUES RANGING FROM 130-140 AND 80-90 KG-MM PRIME2 WERE
OBTAINED. AT 60-G LOADS, THE MICROHARDNESS VALUES IN BOTH ORIENTATIONS
WERE ABOUT THE SAME. ELEC. RESISTIVITY WAS MEASURED BY THE CONVENTIONAL
COMPENSATION METHOD AT 20-200DEGREES. THE RESISTIVITY OF ALL THE
SAMPLES HAD A TYPICALLY METALLIC CHARACTER. THE RESISTIVITY PARALLEL TO
THE CLEAVAGE PLANE AT 20DEGREES WAS 26.6 TIMES 10 PRIME NEGATIVE6
OHM-CM; AT THE SAME TEMP. THE RESISTIVITY PERPENDICULAR TO THE CLEAVAGE
PLANE WAS 65.6 TIMES 10 PRIME NEGATIVE6 OHM-CM, THIS MEANS THAT THE
RESISTIVITY PERPENDICULAR TO THE CLEAVAGE PLANE IS BY 2.4 TIMES LARGER
THAN THAT PARALLEL TO THE CLEAVAGE PLANE. WITH INCREASING TEMP. THE
RESISTIVITY ANISOTROPHY SOMEWHAT DECREASES. THE RESISTIVITY OF
POLYCRYST. SAMPLES HAD AN INTERMEDIARY VALUE, AND WAS 36.8 TIMES 10
PRIME NEGATIVE6 OHM-CM AT 20DEGREES. IT WAS DIFFICULT TO OBTAIN
ACCURATE THERMAL EMF VALUES, AND THE RESULTS OBTAINED VARIED BY
10-15PERCENT. IT IS CONCLUDED THAT AT CONSIDERABLE ANISOTROPY IN THE
RESISTIVITY (IS GREATER THAN 200PERCENT), THE THERMOELEC. PROPERTIES OF
THE SINGLE CRYSTALS ARE PRACTICALLY ISOTROPIC.

UNCLASSIFIED

YURKOV, V. A., YEPISHIN, I. G., TUGUSHEV, S. YU., and SOSHNIKOV, V. A., Penza
Polytechnic Institute

"Physical Properties of SnSb Single Crystals"

Abstract: The results of an experimental investigation of certain physical
properties of SnSb crystals are presented. The procedure for producing samples
is described in detail. Density, microhardness, electric conductivity, and
thermoelectric force were measured. Density was determined by hydrostatic
weighing at room temperature. The average density of SnSb plates was 6.81 g/cm^3.
The microhardness was measured with a PMT-3 instrument for two indentor posi-
tions, one normal and one parallel to the surface. The results are presented
graphically. The electric resistance was measured by the usual compensation
method, with currents parallel and normal to the cleavage surface. The thermo-
electric properties were determined by clamping the sample between two copper
blocks.

1/2

USSR

YURKOV, V. A., et al, Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniye, Vol 29, No 1, Jan 70, pp 108-112

The temperature of one was maintained at 16°C, while that of the other was varied between 16 and 200°C. The $\triangle T$ was measured by a thermocouple with $\pm$ 0.5° accuracy. The thermoelectric force was measured for two directions of the temperature gradient, one parallel and the other normal to the cleavage surface. The results show that the thermoelectric properties of single crystals are practically isotropic. Orig. art. has: 5 figures and 1 formula.

2/2

USSR

UDC 621.396.69.002

POPOV, A. S., YEPISKOPOSYAN, V. K.

"Estimating the Quality of Technical Documents for Products of the Radio Industry"

Nauch. tr. VNII standartiz. (Scientific Works of the All-Union Scientific Research Institute of Standardization), 1971, No 5, pp 52-62 (from RZh-Radiotekhnika, No 10, Oct 71, Abstract No. 10V418)

Translation: The problems of the quality of technical documentation, including the scientific basis for selecting the schematic and structural design, the technological nature of the design, the convenience of arrangement of the elements, units and assemblies, and so on are discussed. A basis is established for introducing the so-called novelty coefficient of the product into the quality index. A study was made of a procedure for considering the errors of the developer with respect to items provided for by the normative-technical documents. An error classification is presented. There are 2 tables and a 5-entry bibliography.

1/1

USSR

KNUNYANTS, I. L., NEYMYSHEVA, A. A., and YEPMOLAYEVA, M. V.

"Method of Producing Esters of Alkyl-(β-sulfonylalkyl)-ethylthionophosphinic Acid"

USSR Author's Certificate No 306131, filed 5/02/70, published 29/07/71.
(Translated from Referativnyy Zhurnal Khimiya, No 5, Moscow, 1972, Abstract
No 5N627P by L. V. Razvodovskaya)

Translation: Compounds with the general formula $R(R'O)P(S)CH_2CH_2S(O_2)R''$ (I),
where R, R' and R'' = alkyl are obtained by adding $CH_2=CHS(O_2)R''$ (II) to
$R(R'O)P(S)H$ (III) in the presence of EtONa at 90-100°. Zero point zero one
nine (0.019) mol (III) (R'=Et, R=Me) and a few drops of EtONa in ethanol
are added to 0.019 mol II (R''=Me) in dry CO_2 atmosphere at 20°, heated for
two hours at 90-100°, distilled, producing I (R=R''=Me, R'=Et), yield 69%,
mp 50-2° (ethanol). I is of interest for study as pesticides.

1/1

USSR   UDC 577.1:615.7/9

SARKISYAN, A. A., YEPREMYAN, G. A., and SIMAVORYAN, P. S.

"On Certain Biochemical and Morphological Changes in the Kidneys in Cases of Chromium Poisoning and the Therapeutic Efficacy of Unithiol"

Translation: A determination was made of SH-group and ascorbic-acid (I) concentration and ATPase activity in rat kidney tissue under conditions of intoxication with varying chromium doses administered internally with the drinking water or subcutaneously. A dose $\geqslant$ 17 mg/kg was the lethal chromium dose. A significant decline was shown in ATPase activity (58% in individual experiments), in SH-groups (32.15%) and I (33.1%). The therapeutic action of unithiol is evinced in a lowering of the animals' mortality and in a normalization of the investigated biochemical indicators. With unithiol, destructive kidney lesions are less pronounced.

1/1

YEPSHTEYN, V. L., Candidate of Technical Sciences, KLIMKOVICH, G. M., Engineer

"The Influence of Pressing and Vacuuming Upon the Strength and Deformability
of Concrete During Compression"

Abstract: At the Institute of Building and Architecture of the State Con-
struction Office of the Belorussian SSR, three series of experiments were con-
ducted on investigation of the physical and mechanical properties of press-
vacuum concrete, and establishment of the optimal regimes of pressing and
vacuuming of the concrete mixture. The experimental projects were conducted
at the Minsk Home-Building Kombinat. The use of press vacuuming increases
concrete strength by a factor of 1.3 to 1.9 (vacuuming increases concrete
strength by a factor of 1.2, static pressing by a factor of 1.41). The modulus
of elasticity of press-vacuum concrete, for the concrete compositions tested
for compression strength at 330-660 kg-force/cm^2, may be assumed constant and
equal to 395,000 kg-force/cm^2. A formula is given for determining the rela-
tive formation of press-vacuum concrete. 4 figures. 1 table. 4 references.

1/1

USSR   UDC 624.042.7:627.8

YERAKHTIN, B. M., Candidate of Technical Sciences

"Results of An Earthquake at the Construction Site of the Chirkeysk Hydro-electric Power Plant"

Moscow, Gidrotekhnicheskoye Stroitel'stvo, No 12, Dec 71, pp 23-25

Abstract: The epicenter area of the earthquake on 14 May 1970 embraced the whole erection area of the Chirkeysk Hydroelectric Power Plant and the neighboring villages. The earthquake effects on concrete and steel structures of the plant in its erection stage, plant buildings, and dwellings are described. In spite of the high destructive force (up to 7.5-8.5 balls) of the earthquake, there were no serious dislocations of the general stability of canyon slopes and in the bearing planes of the arched dam. The dynamic characteristics of underground shocks exceeded values for earthquakes of the same force calculated according to working norms. The material damage caused by this earthquake exceeded 6.5 million rubles. The main works on the erection of the hydraulic power plant were delayed by 4-6 months.

1/1

ON PATHOGENESIS OF HEMORRHAGE FROM ESOPHAGEAL AND GASTRIC VEINS IN PORTAL HYPERTENSION

By M. D. Patsiora, L. I. Aruin, L. M. Karpman and A. K. Yeramishantsev

The authors have investigated 123 patients with portal hypertension complicated by esophageal or gastric phlebectasis. In 88 patients there were gastroesophageal hemorrhages in the anamnesis. In 34 patients during surgical procedures on esophageal and gastric veins the biopsy mucosa specimens from the cardiac portion of the stomach and lower esophagus were studied. It is concluded, that a hemodynamic factor — high portal pressure is of primary importance in causing hemorrhage from esophageal or gastric varices. The starting mechanism of bleeding is hypertensive crisis in the portal system. Acid-peptic factor could contribute to hemorrhage, while disturbances in the blood coagulation system could stipulate its massive character and duration, but they do not play a leading part in the occurrence of bleeding.

REEL/FRAME

19790881

Adsorption

TIMOFEYEV, D. P., and YERASHKO, I. T., Institute of Physical Chemistry, Academy of Sciences USSR, Moscow

"The Role of Thermal Effects in the Kinetics of Adsorption"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 45, No 3, Mar 71, pp 651-654

Abstract: During determinations of the kinetics of adsorption of benzene and MeOH vapors on carbon AR-3 and of water vapor on zeolite CaA, changes of the temperature in the center and on the surface of adsorbent grains were determined by means of thermocouples. During slow adsorption in vacuo, the increase in temperature due to evolution of the heat of adsorption did not exceed several degrees. When adsorption was carried out from a stream of carrier gas, the increase in temperature was still smaller ($\leq$ 1-2°). The external temperature was kept constant in the experiments conducted. The results showed that under ordinary conditions of adsorption measurements the effect of the temperature rise due to adsorption is very small and that the error arising in calculations of the coefficient of inner diffusion because of the non-isothermal conditions produced by evolution of the heat of adsorption is negligible.
N. A. TVERDOKHLEB participated in the work described.
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USSR   UDC 539.216.2

AKULININ, S.A., YERASHOV, A.N.,SHCHEVELEV, M.I.

"To The Problem Of The Mechanism Of The Low-Frequency Dispersion Of The Dielect-
rical Characteristics Of Thin Amorphous Films"

Sb. tr. po poluprovodnikovym materialam, priboram i ikh primeneniyu (Collection
Of Works On Semiconductor Materials, Devices, And Their Applications),Voronezh,
1971, pp 22-29 (from RZh:Elektronika i yeye primeneniye, No 11, Nov 1972,
Abstract No 11B199)

Translation: The proposed model explains the observed linear dependence between
C^{-1} (log f) and $R_0(f^{-1})$, where C is the capacitance; R_0 is the leakage resist-
ance of a capacitor with an amorphous dielectric; f is the frequency, and also
the independence of the dielectric losses from the frequency. The model is based
on an assumption concerning the random character of the distribution of the
volume resistance in an oxide dielectric film which has an amorphous structure
and the exponential character of the barriers between the individual fluctuat-
ions of the density. The respective analytical expressions for C and R_0 are ob-
tained, and the curves are plotted of the calculated dependence of normalized
resistance, capacitance, and the dielectric loss tangent. The model is applic-
able to oxide ion dielectrics with an amorphous structure. 3 ill. 5 ref. V.K.

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